



# Operating Instructions

## Safety Switch

> 7537/2



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## 2 General Information

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### 2.1 Manufacturer

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### 2.2 Operating Instructions Information

ID-No.: 201043 / 753760300060  
 Publication Code: 2012-03-06·BA00·III·en·02  
 Subject to alterations.

## 3 Intended Use

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The Safety switches of Series 7537 ensure that machines in hazardous areas are disconnected from electrical power during cleaning and repair work. The EMC versions are required for motors operated via frequency converters. The devices are approved for use in hazardous areas of Zone 22.

## 4 General Safety Instructions

The devices must be used only for the permitted purpose. Incorrect or impermissible use or non-compliance with these instructions invalidates our warranty provision. Any alterations and modifications to the device impairing its explosion protection are not permitted. Use the device only if it is undamaged and clean.

### **WARNING**

Installation, maintenance, overhaul and repair may only be carried out by appropriately authorised and trained personnel.

#### **Observe the following information during installation and operation:**

- ▶ Any damage can invalidate the explosion protection
- ▶ National and local safety regulations
- ▶ National and local accident prevention regulations
- ▶ National and local assembly and installation regulations (e.g. IEC/EN 60079-14)
- ▶ Generally recognized technical regulations
- ▶ Safety instructions in these operating instructions
- ▶ Characteristic values and rated operating conditions on the rating and data plates
- ▶ Additional instruction plates fixed directly to the device

## 5 Conformity to Standards

The relevant standards are listed in the EC Declaration of Conformity. This document is available under [www.stahl-ex.com](http://www.stahl-ex.com).

## 6 Transport and Storage

- ▶ Transport and storage are only permitted in the original packing.

## 7 Technical Data

Explosion protection  
Europe (ATEX)  
Dust

II 3 D Ex tD A22 IP66 T90 °C

### Version

Rated operational current  
Rated operational frequency  
Rated short-time current  
withstand capability  
Short circuit protection  
with back-up fuse  
Conductor connection  
Connection cross-section  
Solid  
Stranded  
Finely stranded  
with core end sleeve  
acc. to DIN 46228  
Tightening torque  
Cable entry  
Stopping plug  
Cable gland

**7537/2-603**  
**6-pole, 32 A**

32 A  
50 Hz  
650 A  
35 A gG  
1 x 1 ... 6 mm<sup>2</sup>  
2 x 1 ... 6 mm<sup>2</sup>  
1 x 0.75 ... 4 mm<sup>2</sup>  
2 x 0.75 ... 4 mm<sup>2</sup>

1.6 Nm

1 x 8290/3-M25  
2 x 8290/3-M32

**7537/2-604**  
**6-pole, 63 A**

60 A  
50 Hz  
1300 A  
80 A gG  
1 x 2.5 ... 35 mm<sup>2</sup>  
2 x 2.5 ... 16 mm<sup>2</sup>  
1 x 1.5 ... 25 mm<sup>2</sup>  
2 x 1.5 ... 10 mm<sup>2</sup>

4 Nm

1 x 8290/3-M25  
2 x 8290/3-M40

**7537/2-605**  
**6-pole, 100 A**

88 A  
50 Hz  
1850 A  
100 A gG  
1 x 2.5 ... 35 mm<sup>2</sup>  
2 x 2.5 ... 16 mm<sup>2</sup>  
1 x 1.5 ... 25 mm<sup>2</sup>  
2 x 1.5 ... 10 mm<sup>2</sup>

4 Nm

1 x 8290/3-M25  
2 x 8290/3-M50

### Safety switch

7537/2-603

### Cable gland

1 x 8161/5-M25  
2 x 8161/5-M32

### Cable dia. range

7 ... 17 mm  
13 ... 21 mm

7537/2-604

1 x 8161/5-M25  
2 x 8161/5-M40

7 ... 17 mm  
17 ... 28 mm

7537/2-605

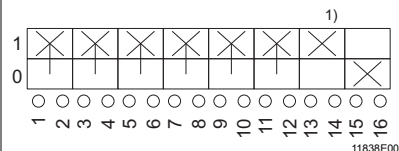
1 x 8161/5-M25  
2 x 8161/5-M50

7 ... 17 mm  
23 ... 35 mm

Note  
Cover screws  
tightening torque  
Degree of protection  
Circuit diagram

For tightening torques, please refer to the operating instructions of the components.  
4.5 Nm

IP66 acc. to IEC/EN 60529



1) Load-shedding contact (delayed ON, leading OFF, according to IEC/EN 60947-1)


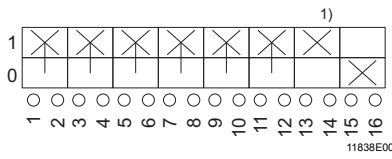
### Auxiliary contacts

Rated operational current

AC-15	230 V	6 A
DC -13	125 V	1,1 A
	250 V	0.55 A

Rated constant current  
Rated insulation voltage  
Short-circuit protection  
With fuse  
Control circuit reliability

10 A  
500 V  
10 A gG  
< 1 failure per 100,000 switching operations at 24 V DC, 10 mA

Explosion protection Europe (ATEX) Dust	 II 3 D Ex tD A22 IP66 T90 °C		
<b>Version</b>	<b>7537/2-607</b> <b>6-pole, 160 A</b>	<b>7537/2-609</b> <b>6-pole, 250 A</b>	
Rated operational current	160 A	240 A	
Rated operational frequency	50 Hz	50 Hz	
Rated short-time current withstand capability	2000 A	3500 A	
Short circuit protection with back-up fuse	160 A gG	160 A gG	
Conductor connection			
Connection cross-section			
Solid	1 x 10 ... 16 mm <sup>2</sup>	1 x 4 ... 16 mm <sup>2</sup>	
Stranded	2 x 6 ... 16 mm <sup>2</sup>	2 x 4 ... 16 mm <sup>2</sup>	
Finely stranded with core end sleeve acc. to DIN 46228	1 x 25 ... 70 mm <sup>2</sup> 2 x 25 mm <sup>2</sup>	1 x 25 ... 185 mm <sup>2</sup> 2 x 25 ... 70 mm <sup>2</sup>	
Tightening torque	4 Nm	6 Nm	
Cable entry	—	1 x 8290/3-M25	
Stopping plug	—		
Cable gland	—		
	Safety switch	Cable gland	Cable dia. range
	7537/2-607	1 x 8161/5-M25 2 x 8161/5-M50	7 ... 17 mm 23 ... 35 mm
	7537/2-609	1 x 8161/5-M25 2 x 8161/5-M63	7 ... 17 mm 31 ... 48 mm
Note	For tightening torques, please refer to the operating instructions of the components.		
Cover screws tightening torque	4.5 Nm		
Degree of protection	IP66 acc. to IEC/EN 60529		
Circuit diagram			
Auxiliary contacts	1) Load-shedding contact (delayed ON, leading OFF, according to IEC/EN 60947-1)		
NO contact	NO contact opens approx. 20 ms before opening of the main contacts		
Rated operational current	AC-15	115 / 230 V   4 A 400 V   2 A 500 V   1 A	
	DC -13	24 V   3 A 42 V   1.5 A 60 V   0.8 A 110 V   0.5 A 220 V   0.2 A	
Conventional thermal current	4 A		
Rated working voltage	500 V AC / 220 V DC		
Short-circuit protection			
With fuse	10 A gG		
With miniature circuit breaker	FAZ-B6		
Conductor connection			
Connection cross-section			
Solid or finely stranded with end covering sleeve	1 x 0.75 ... 2.5 mm <sup>2</sup> 2 x 0.75 ... 2.5 mm <sup>2</sup>		
Tightening torque	1 Nm		

Explosion protection  
Europe (ATEX)  
Dust

II 3 D Ex tD A22 IP66 T90 °C

## Version

Rated operational current  
Rated operational frequency  
Rated short-time current  
withstand capability  
Short circuit protection  
with back-up fuse  
Conductor connection  
Connection cross-section  
Solid  
Stranded  
Finely stranded  
with core end sleeve  
acc. to DIN 46228  
Cable entry  
Cable gland

**7537/2-302**  
**3-pole, 25 A**

25 A  
50 Hz  
640 A

25 A gG

1 x 1.5 ... 6 mm<sup>2</sup>  
2 x 1.5 ... 6 mm<sup>2</sup>  
1 x 1 ... 4 mm<sup>2</sup>  
2 x 1 ... 4 mm<sup>2</sup>

**7537/2-303**  
**7537/2-303 EMC**  
**3-pole, 32 A**

32 A  
50 Hz  
640 A

50 A gG

**7537/2-304**  
**7537/2-304 EMC**  
**3-pole, 63 A**

63 A  
50 Hz  
1260 A

80 A gG

**7537/2-305**  
**7537/2-305 EMC**  
**3-pole, 100 A**

98 A  
50 Hz  
2000 A

100 A gG

## Safety switch

7537/2-302  
7537/2-303

7537/2-304

7537/2-305

7537/2-303 EMC

7537/2-304 EMC

7537/2-305 EMC

## Cable gland

1 x 8161/5-M25

2 x 8161/5-M32

1 x 8161/5-M25

2 x 8161/5-M40

1 x 8161/5-M25

2 x 8161/5-M50

1 x EMSKE 25

2 x EMSKE 35

1 x EMSKE 25

2 x EMSKE 40

1 x EMSKE 25

2 x EMSKE 50

## Cable dia. range

7 ... 17 mm

13 ... 21 mm

7 ... 17 mm

17 ... 28 mm

7 ... 17 mm

23 ... 35 mm

10 ... 17 mm

13 ... 21 mm

7 ... 17 mm

16 ... 28 mm

7 ... 17 mm

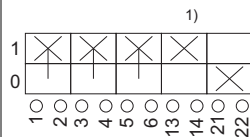
21 ... 35 mm

## Note

Cover screws  
tightening torque  
Degree of protection  
Circuit diagram

For tightening torques, please refer to the operating instructions of the components.  
4.5 Nm

IP66 acc. to IEC/EN 60529



11839E00

1) Load-shedding contact (delayed ON, leading OFF, according to IEC/EN 60947-1)

## Auxiliary contacts

Rated operational current

AC-15	230 V	6 A
DC -13	125 V	1,1 A
	250 V	0.55 A

Rated constant current

10 A

Rated insulation voltage

500 V

Short-circuit protection

With fuse

10 A gG

Control circuit reliability

< 1 failure per 100,000 switching operations at 24 V DC, 10 mA

Conductor connection

Connection  
cross-section

Finely stranded

1 x 0.75 ... 2.5 mm<sup>2</sup>  
2 x 0.75 ... 2.5 mm<sup>2</sup>

Finely stranded with  
core end sleeve  
acc. to DIN 46228

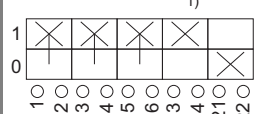
1 x 0.5 ... 1.5 mm<sup>2</sup>  
2 x 0.5 ... 1.5 mm<sup>2</sup>

Tightening torque

0.6 Nm

Explosion protection  
 Europe (ATEX)  
 Dust

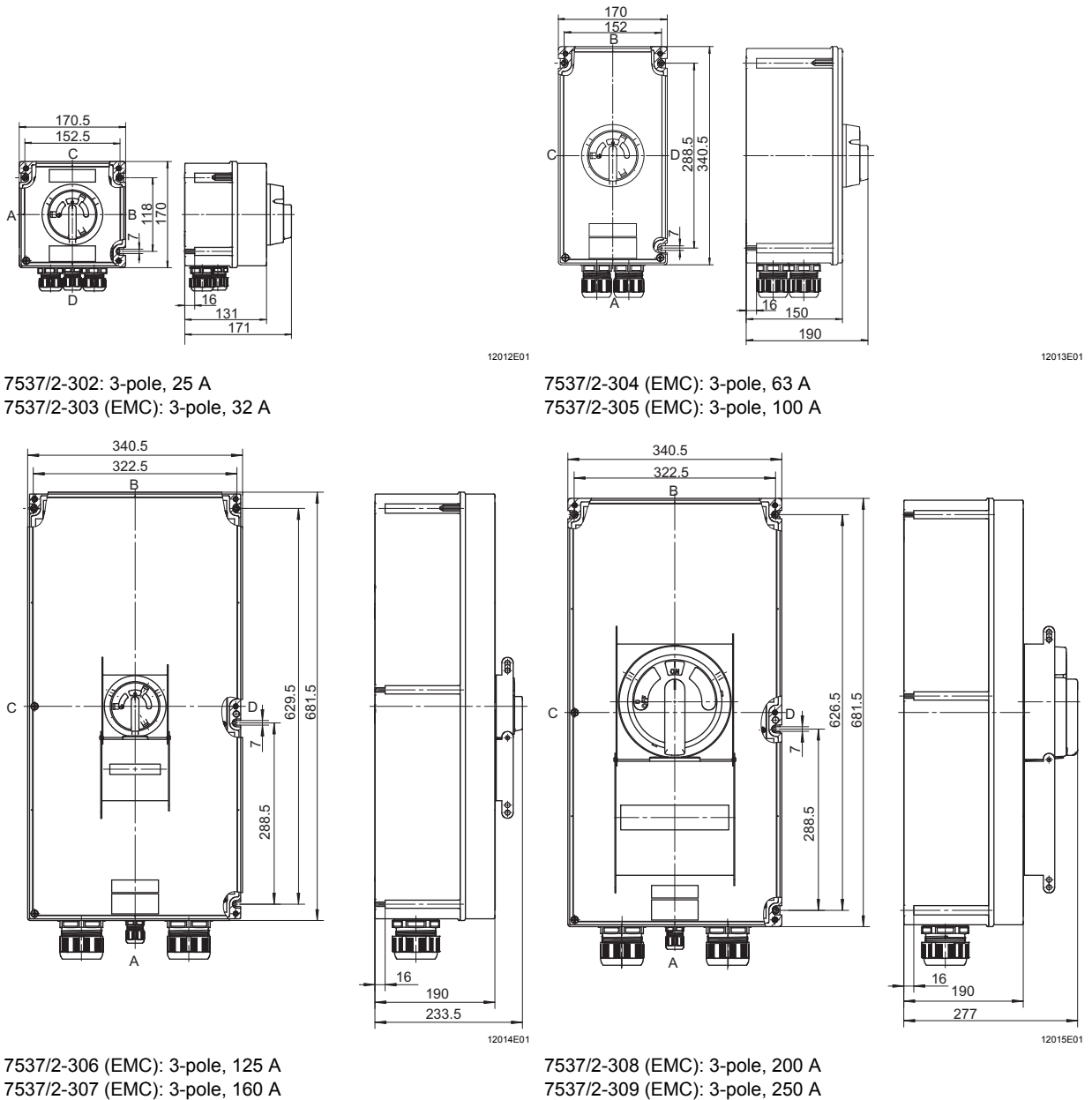
II 3 D Ex tD A22 IP66 T90 °C

Version	7537/2-306 7537/2-306 EMC 3-pole, 125 A	7537/2-307 7537/2-307 EMC 3-pole, 160 A	7537/2-308 7537/2-308 EMC 3-pole, 200 A	7537/2-309 7537/2-309 EMC 3-pole, 240 A	7537/2-310 7537/2-310 EMC 3-pole, 400 A	7537/2-311 7537/2-311 EMC 3-pole, 630 A
Rated operational current	125 A	160 A	200 A	240 A	400 A	630 A
Rated operational frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Rated short-time current withstand capability	2000 A	2000 A	3500 A	3500 A	12,000 A	12,000 A
Short circuit protection with back-up fuse	125 A gG	160 A gG	200 A gG	240 A gG	400 A gG	630 A gG
Conductor connection						
Connection cross-section						
Solid	1 x 10 ... 16 mm <sup>2</sup>		1 x 4 ... 16 mm <sup>2</sup>		2 x 16 mm <sup>2</sup>	
Stranded	2 x 6 ... 16 mm <sup>2</sup>		2 x 4 ... 16 mm <sup>2</sup>		—	
Finely stranded with core end sleeve acc. to DIN 46228	1 x 25 ... 70 mm <sup>2</sup> 2 x 25 mm <sup>2</sup>		1 x 25 ... 185 mm <sup>2</sup> 2 x 25 ... 70 mm <sup>2</sup>		1 x 35 ... 240 mm <sup>2</sup> 2 x 25 ... 240 mm <sup>2</sup>	
Terminal screws	4 mm		5 mm		8 mm	
Tightening torque	9 Nm		14 Nm		31 Nm	
Cable entry						
Stopping plug	—		—		1 x 8290/3-M25	
Cable gland						
	Safety switch		Cable gland		Cable dia. range	
	7537/2-306		1 x 8161/5-M25		7 ... 17 mm	
	7537/2-307		2 x 8161/5-M63		31 ... 48 mm	
	7537/2-308					
	7537/2-309		1 x 8161/5-M25		7 ... 17 mm	
	7537/2-310		4 x 8161/5-M63		31 ... 48 mm	
	7537/2-311					
	7537/2-306 EMC		1 x EMSKE 25		10 ... 17 mm	
	7537/2-307 EMC		2 x EMSKE 63		32 ... 48 mm	
	7537/2-308 EMC					
	7537/2-309 EMC					
	7537/2-310 EMC		1 x EMSKE 25		10 ... 17 mm	
	7537/2-311 EMC		4 x EMSKE 63		32 ... 48 mm	
Note	For tightening torques, please refer to the operating instructions of the components.					
Cover screws tightening torque	4.5 Nm					
Degree of protection	IP66 acc. to IEC/EN 60529					
Circuit diagram	<div>1) </div>					
	11839E00					
	1) Load-shedding contact (delayed ON, leading OFF, according to IEC/EN 60947-1)					
Auxiliary contacts						
NO contact	NO contact opens approx. 20 ms before opening of the main contacts					
Rated operational current	AC-15	115 / 230 V	4 A			
		400 V	2 A			
		500 V	1 A			
	DC -13	24 V	3 A			
		42 V	1.5 A			
		60 V	0.8 A			
		110 V	0.5 A			
		220 V	0.2 A			
Conventional thermal current	4 A					
Rated working voltage	500 V AC / 220 V DC					
Short-circuit protection						
With fuse	10 A gG					
With miniature circuit breaker	FAZ-B6					

Auxiliary contacts	
Conductor connection	
Connection cross-section	
Solid or finely stranded with end covering sleeve	1 x 0.75 ... 2.5 mm <sup>2</sup> 2 x 0.75 ... 2.5 mm <sup>2</sup>
Tightening torque	0.6 Nm

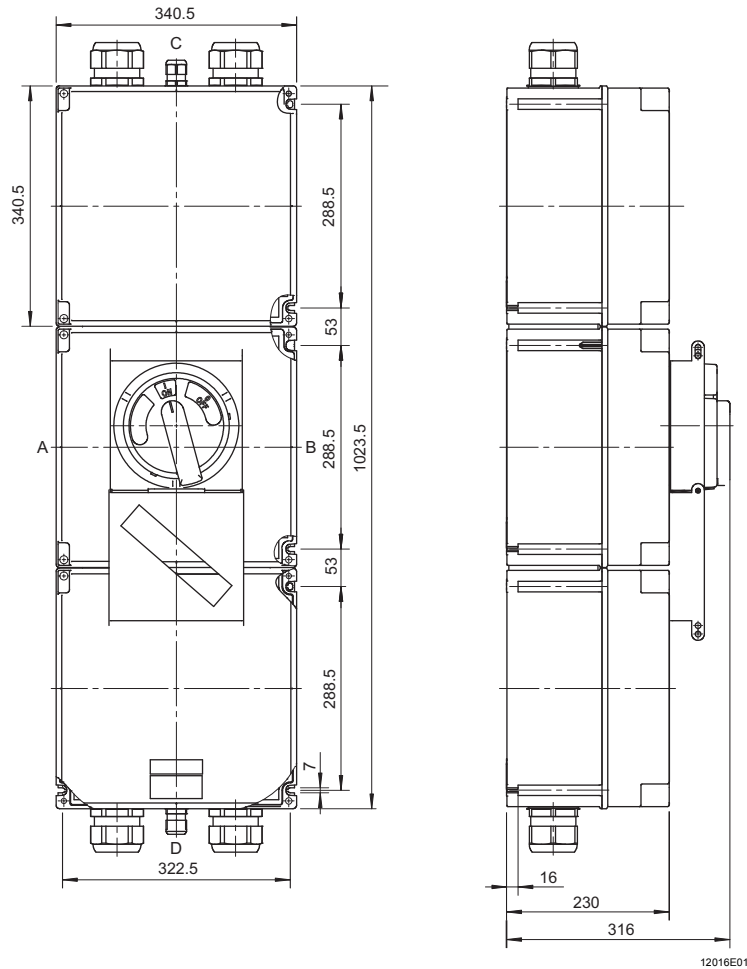
## 8 Dimensions

**Dimensional Drawings** (All Dimensions in mm) - Subject to Alterations



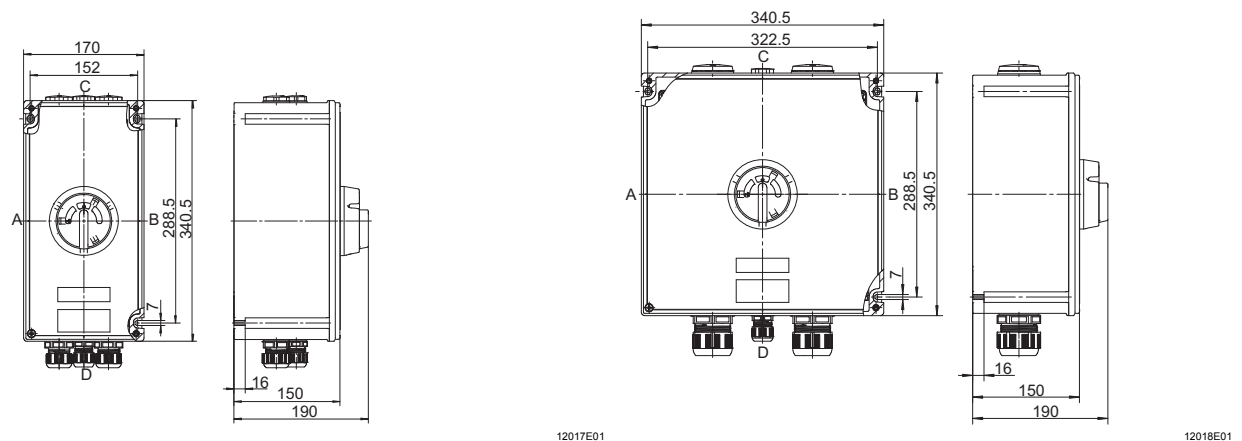


## Dimensional Drawings (All Dimensions in mm) - Subject to Alterations



7537/2-310 (EMC): 3-pole, 400 A  
 7537/2-311 (EMC): 3-pole, 630 A

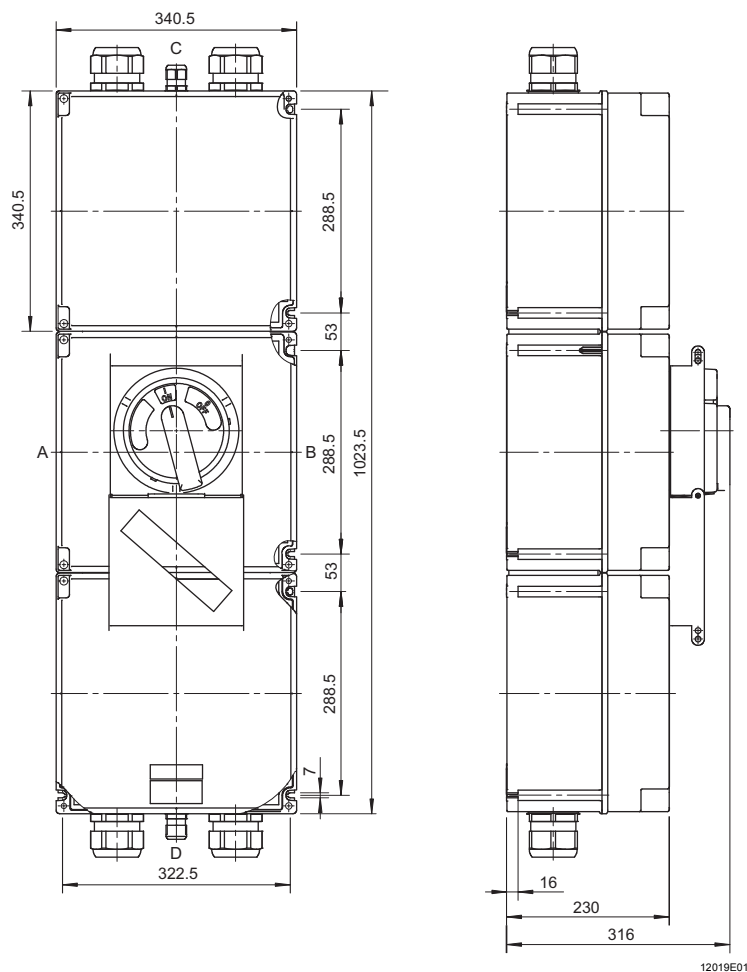
## Dimensional Drawings (All Dimensions in mm) - Subject to Alterations



7537/2-603: 6-pole, 32 A

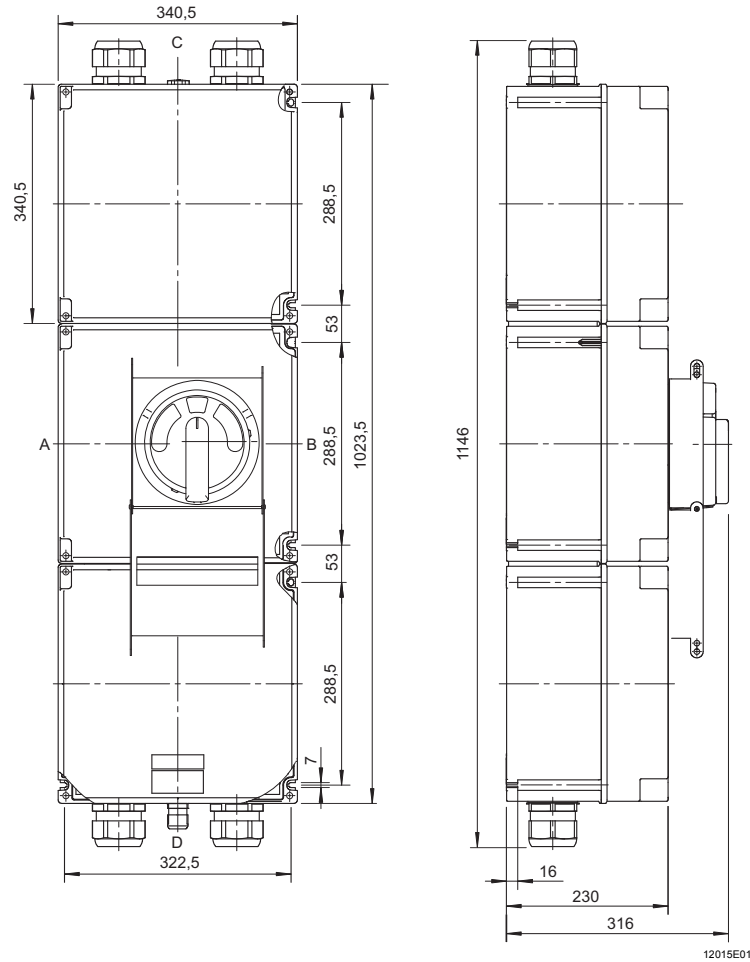
7537/2-604: 6-pole, 63 A  
 7537/2-605: 6-pole, 100 A

## Dimensional Drawings (All Dimensions in mm) - Subject to Alterations



7537/2-607: 6-pole, 160 A

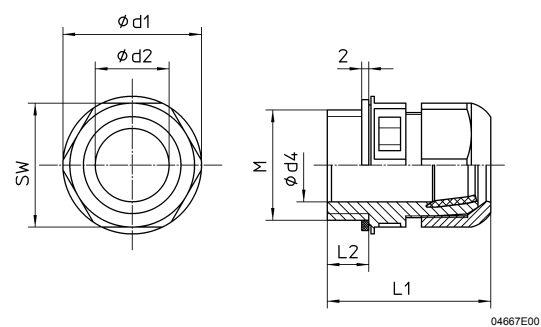
# Dimensional Drawings (All Dimensions in mm) - Subject to Alterations



7537/2-609: 6-pole, 250 A

## 8161

# Dimensional Drawings (All Dimensions in mm) - Subject to Alterations





Thread size	Dimensions [mm]							
	SW (AF)	Ød1	L1		L2	Cable dia. range	Ød2	Ød4
			min.	max.				
M16 x 1.5	20	22	31	37	9	4 ... 9	10.3	9.3
M20 x 1.5	24	27	36	45	10	6 ... 13	13.3	13.3
M25 x 1.5	29	32	38	47	10	10 ... 17 7 ... 12* 4 x 3 ... 6	17.3	17.3
M32 x 1.5	36	40	42	51	12	13 ... 21 4 x 5 ... 7	21.3	21.3
M40 x 1.5	46	51	52	65	12	17 ... 28	28.3	30
M50 x 1.5	55	61	59	72	14	23 ... 35	35.3	40
M63 x 1.5	68	75	64	78	15	31 ... 48	48.3	53

\* Cable dia. range 7 ... 12 mm: with additional sealing ring



The disc fitted to prevent the ingress of dust must be removed during installation.

## 9 Assembling and Dismantling

	If the explosion protected equipment is exposed to the weather, it is advisable to provide a protective cover or wall.
▶ Only cable entries according to IEC/EN 60079-0 may be used.	
	For the drilling hole pattern, see dimensional drawing.

## 10 Installation

### 10.1 Electrical Connection

 <b>WARNING</b>	
	<b>Incorrectly installed components!</b> <ul style="list-style-type: none"> <li>▶ If the components are installed incorrectly, explosion protection is no longer guaranteed.</li> <li>▶ Make sure that only components with suitable certificate are used.</li> <li>▶ Observe the enclosed documents such as wiring diagrams.</li> </ul>

- ▶ The conductor must be carefully connected.
- ▶ The conductor connection must reach to the terminal.
- ▶ Do not damage the conductor (nicking) when removing the insulation.
- ▶ To ensure that the maximum permissible conductor temperatures are not exceeded, select suitable cables and means of running them.
- ▶ Observe the tightening torque of the terminals.
- ▶ The information given in chapter "Technical Data" must be observed.

### 10.2 Protective conductor connection

- ▶ A protective conductor is always required.


### 10.3 Back-up fuses / back-up fuses with auxiliary circuits

- ▶ Provide suitable back-up fuses (see chapter "Technical Data").


## 11 Putting into Service

### Before putting into service

- ▶ Make sure that the device is not damaged.
- ▶ Make sure that the device has been installed correctly.
- ▶ Remove any foreign objects from the device.
- ▶ Check if screws and nuts are fastened tightly.
- ▶ Check the tightening torques.
- ▶ Make sure that the contact surfaces for actuators are flat.
- ▶ Check if cable glands and stopping plugs are tight.

	For unused enclosure holes use R. STAHL stopping plugs, e.g., Series 8290, for unused cable entries use R. STAHL plugs, e.g., Series 8161.
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## 12 Maintenance, Overhaul and Repair

⚠ WARNING	
Do not open when live!	
⚠ WARNING	
	<b>Short-circuit in the main circuit</b> <ul style="list-style-type: none"> <li>▷ Contacts may be damaged.</li> <li>▶ Replace the switch after each short circuit in the main circuit (the element is hermetically sealed and the state of the switching contacts cannot be checked).</li> </ul>

**The following details must be checked during maintenance:**

- ✗ Cables are held securely in place by the clamping points.
- ✗ Compliance with the permissible temperatures (acc. to IEC/EN 60079 et seqq.)
- ✗ Damage to the enclosure and seals.

**Regular maintenance work:**

- ▶ Consult the relevant national regulations (e.g. IEC/EN 60079-17) to determine the type and extent of inspections.
- ▶ Plan the intervals such that any expected defects are detected promptly.

## 13 Cleaning

- ✗ Clean with a damp cloth, brush, vacuum cleaner or similar items.
- ✗ When cleaning with a damp cloth use water or mild, non-abrasive, non-scratching cleaning agents.
- ✗ Never use aggressive cleaning agents or solvents.

## 14 Accessories and Spare Parts

⚠ WARNING
Use only original R. STAHL accessories and spare parts.

## 15 Disposal

The national waste disposal regulations have to be observed.





